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ABSTRACT

This study investigated the effectiveness of a team supervisory conference in eliciting pupil divergent thinking in a trial lesson. The first hypothesis was that pupils who are asked divergent questions by student teachers who have had a team supervisory conference prior to the lesson will express more divergent thought in a ten-minute lesson than those questioned by student teachers who have not had such a conference. The second hypothesis was that a student teacher who has had a team supervisory conference between a practice and a criterion divergent questioning lesson will ask significantly more divergent questions in the criterion lesson than those who did not have such a conference. The subjects were 24 female University of Maryland (Baltimore County) elementary student teachers and 240 elementary pupils from neighboring school systems. Students and student teachers were divided into either a control group or a treatment group. All student teachers were given an assignment to prepare one 10-minute lesson that would elicit divergent thinking from a group of five pupils. Student teachers in the treatment group then participated in a supervisory conference with a teacher center coordinator and a supervising teacher. All the student teachers--both treatment and control--then taught the same lesson (criterion lesson) to a second group of pupils. The lessons of both groups were videotaped. The first hypothesis--that the pupils of student teachers who had participated in a supervisory conference would produce more divergent thinking in the criterion lesson--was confirmed; the second hypothesis--that the supervisory conference would increase the number of divergent questions asked by student teachers--was not confirmed. (MM)

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EFFECTS OF TEAM SUPERVISION ON THE DIVERGENT QUESTIONING OF STUDENT TEACHERS AND THE DIVERGENT THINKING OF THEIR ELEMENTARY PUPILS

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PREFACE

As a result of the study and practice of Clinical Supervision in in-service supervision courses and in working with pre-service students, I became interested in the effects of teacher questions on elementary pupils. I observed over and over that student teachers were setting the pattern of pupil responses by relying heavily on narrow factual questions. Since student teachers model themselves to a great extend after their supervising teachers, I developed a training module which would involve both student teachers and supervising teachers.

The implementation of this training and research in the Teacher Education Center schools, which is described in the following article, offered a number of advantages over campus-based research.

1) Ready access to elementary pupils
2) Funds to provide substitutes for supervising teachers.
3) Greater impact of the results of the research on practitioners.

The professional growth of student teachers and supervising teachers which resulted from their involvement in this project was gratifying. It has stimulated a desire for more of this type of research and development activity within the Teacher Education Center context.

Teachers can significantly influence the types of thinking done by pupils in their classrooms by varying the levels of questions they ask (Hunkins, 1970; Boone, 1971). Specifically in the area of divergent questioning, Aschner and Gallagher (1963) reported that increases in percentages of teacher divergent questions resulted in increases in boys' and girls' divergent thinking in gifted social studies classes. Werner, Golden, and Mills (1972) found that the pupils of elementary teachers trained in the use of brainstorming techniques[1] showed significant gains in three categories of divergent thinking (fluency, flexibility, and originality).

Another type of research on teacher behavior, closely related to the above studies, has been directed at the effectiveness of methods of training teachers. McDonald, Allen, and Orme (1966) investigated the training effectiveness of self-administered feedback as compared with supervisor-administered feedback in micro-teaching clinics. They found that supervisor-administered feedback was more effective in increasing the frequency of specific teaching skills. Young (1970) studied the effects of colleague supervision (a peer and a supervisor) versus working with a supervisor alone on the acquisition of specific teaching behaviors in a micro-teaching sequence by M.A.T. interns. Her findings indicated that the interns in the colleague supervision group did acquire and perform a significantly greater number of specific teaching skills.

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[1] Brainstorming techniques are a variation of divergent questioning. Both are open-ended and require that pupils give as many different responses as they can.

The present study is aimed at investigating the effectiveness of a team supervisory conference in eliciting pupil divergent thinking in a trial lesson.

More specifically, the first hypothesis is that:

> "pupils who are asked divergent questions by student teachers who have had a team supervisory conference prior to the lesson, will express more divergent thought in a ten-minute lesson than those pupils questioned by student teachers who have not had such a conference."

A second hypothesis is that:

> "student teachers who have a team supervisory conference between a practice and a criterion divergent questioning lesson will ask significantly more divergent questions in the criterion lesson than those who did not have such a conference."

Method

Subjects

The subjects were twenty-four female University of Maryland Baltimore County elementary student teachers and two hundred and forty elementary pupils from three neighboring school systems. Twelve student teachers and one hundred and twenty pupils were assigned to the treatment group and twelve student teachers and one hundred and twenty pupils were assigned to the control group.

Design

The design consisted of a one-way analysis of variance, the factor being the team supervisory conference present in the experimental group

and absent in the control group. Two dependent measures were obtained - the amount of pupil divergent thinking in the criterion lessons and the number of divergent questions asked by student teachers in the criterion lessons.

Procedure

All student teachers - both treatment and control - were prepared for the Teaching Clinic by participating in an orientation session, in which they worked in small groups practicing divergent thinking themselves and then viewed several videotaped models of teachers using techniques of eliciting divergent thinking. All student teachers were given an assignment to prepare one ten-minute lesson which would elicit divergent thinking from a group of five pupils. These lessons were then taught for the first time to groups of five pupils, randomly selected from the grade levels at which the student teachers were working. All of these lessons were videotaped.

Student teachers in the treatment group then participated in a supervisory conference with a Teacher Center Coordinator and a supervising teacher. During the conference, the three participants critiqued the first lesson, watched selected portions of the videotape, and revised plans for the second lesson which was to follow.

Student teachers in the control group interacted with the Teacher Center Coordinator and the supervising teacher after the first lesson, but no analysis of the lesson or planning for the next lesson was permitted.

All student teachers - both treatment and control - then taught the same lesson (criterion) to a second group of pupils. After the criterion

lesson, team supervisory conferences were held with all student teachers.

Measurement

Amounts of pupils divergent thinking was measured using the broad category of divergent production in Aschner-Gallagher's classroom observation system (1963). Teacher questions were also categorized using the Aschner-Gallagher system. The investigator trained a graduate student in the use of this system in coding the videotapes. Inter-rater reliability, using Spearman's Rank-Order Correlation Coefficient, was .97.

Results

The first hypothesis - that the pupils (N=60) of student teachers who had participated in supervisory conferences would produce more divergent thinking in the criterion lesson than the control pupils - was confirmed. The mean scores (treatment group = 44.3, control group = 25.1) were found to be significantly different ($t = 2.11$, $df = 22$, $p < .05$).

The second hypothesis - that the supervisory conference would increase the number of divergent questions asked by student teachers (N = 12) - was not confirmed. The mean scores (treatment group = 14.5, control group = 12.8) were found not to be significantly different ($t = .49$, $df = 22$).

Discussion

Why were the pupils in the treatment group considerably more fluent than the controls? One explanation is that the analysis of the practice lesson and the pre-planning for the criterion lesson during the conference were responsible. The analysis included an examination of the types of questions asked - student teachers were made aware of convergent questions

which they were asking. The treatment student teachers also engaged in a pre-planning session for the criterion lesson at the end of the supervisory conference. By rehearsing the divergent questions to be asked or "talking through" the format of the lesson, the student teacher was enabled to enter the criterion lesson much better prepared and thus elicit more divergent thinking.

The finding that treatment student teachers did not ask significantly more divergent questions than the control student teachers was probably due to two factors. The first is that the nature of divergent questions is such that one question usually elicits many pupil responses. For example, the question, "How many ways can I use these popsicle sticks?" could provoke up to fifteen-twenty responses from pupils before another question is asked. A second factor is that treatment student teachers were advised in the conferences to ask only one divergent question at a time and to give pupils additional time to think. These suggestions did result in the treatment student teachers using fewer questions during the criterion lesson than they did during the practice lesson. Yet those fewer questions were still effective in eliciting more divergent thinking than were the questions of the control student teachers.

Limitations of the Study

One major limitation of this study was the difference in subject matter chosen by the student teacher. The overall decline in the number of divergent questions asked during the criterion lessons for both treatment and control student teachers might not take place if subject matter were controlled.

A second limitation was the lack of repeated trials involving the same elementary pupils. Further research on the impact of conferences on student teacher questioning could be made more precise by measuring the gains in questioning and pupil divergent thinking over a number of trials.

Implications

The present study provided additional evidence that divergent thinking on the part of teachers and pupils can be readily increased. These techniques offer hope to teachers who want to assist their pupils to break out of the "right answer" pattern of relating to the teacher.

A second major implication of the study is that the involvement of supervising teachers, student teachers, and pupils in a research and development activity of this variety stimulates the pupils intellectually and the teachers professionally. Many supervising teachers became genuinely enthusiastic about using divergent questions in reading and social studies lessons of their own. It would seem that an expansion of this type of research and development would further stimulate professional growth for both pre and in-service teachers.

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